

Table 2.2
Estimate of Pollutant Loading

	Units	Pollutants					Parameters/Assumptions ^d
		TSS	Oil/Grease	Cadmium ^c	Copper	Lead	
Average Event Mean Concentration ^a (EMC), Cm	mg/L	94.40	9.47 ^b	0.005	0.022	0.022	0.130
Runoff Coefficient, RV		0.8	0.8	0.8	0.8	0.8	RV = 0.007 * % Impervious Area + 0.10, % Imp Area = 100%
Rainfall Volume for the Mean Storm Event, Hms	mm	11.7	11.7	11.7	11.7	11.7	Table 13, p. 55, Seattle
Area, A	ha per catch basin	0.067	0.067	0.067	0.067	0.067	Assume 6-Lane Alt., 60 ft wide, 120 ft between catch basin
	ha per vault	0.234	0.234	0.234	0.234	0.234	Assume 6-Lane Alt., 60 ft wide, 420 ft length between vaults
	ha per lane-mile	0.59	0.59	0.59	0.59	0.59	Assume 12 feet lane width, 1 mile length of bridge
	ha for 6-lane total bridge	7.95	7.95	7.95	7.95	7.95	Assume 6-Lane Alt., 120 ft total width, 7132 ft length
Volume of Runoff for Mean Storm Event, Vms	m ³ per catch basin	6.3	6.3	6.3	6.3	6.3	Eq 7: Vms = RV * Hms * A *10
	m ³ per vault	21.9	21.9	21.9	21.9	21.9	
	m ³ per lane-mile	55.2	55.2	55.2	55.2	55.2	
	m ³ for 6-lane total bridge	744.1	744.1	744.1	744.1	744.1	
Mean Event Mass Load, Lm	kg/event per catch basin	0.592	0.059	0.000	0.000	0.000	Eq 9: Lm = Cm * Vms/1000
	kg/event per vault	2.068	0.207	0.000	0.000	0.000	0.003
	kg/event per lane-mile	5.213	0.523	0.000	0.001	0.001	0.007
	kg/event for 6-lane total bridge	70.245	7.047	0.004	0.017	0.016	0.097
No. of Storms Per Year, Ns	events/yr	86.7	86.7	86.7	86.7	86.7	Ns = 24 * 365/Ts where Ts = interval mean = 101, Table 13, p. 55, Seattle
Annual Mass Loading, La (Metric Units)	kg/yr per catch basin	51.35	5.15	0.00	0.01	0.01	Eq 10: La = Lm *Ns
	kg/yr per vault	179.33	17.99	0.01	0.04	0.04	0.25
	kg/yr per lane-mile	452.15	45.36	0.02	0.11	0.10	0.62
	kg/yr per bridge deck	6092.53	611.19	0.32	1.44	1.41	8.38
Annual Mass Loading, La (English Units)	lb/yr per catch basin	114.10	11.45	0.01	0.03	0.03	1 lb force = 4.45 N = 1 kg * 9.8 m/s ²
	lb/yr per vault	398.51	39.98	0.02	0.09	0.09	0.55
	lb/yr lane-mile	1004.78	100.80	0.05	0.24	0.23	1.38
	lb/yr total bridge deck	13539	1358	0.72	3.20	3.14	18.62

^a Source: Kayhanian M., Hollingsworth L., Spongberg M., Regenmorter L., and K. Tsay. Jan. 2002. Characteristics of Stormwater Runoff from CalTrans Facilities. Transportation Research Board, Annual Conference, Washington D.C. Table 3.

^b Source: Federal Highway Administration. March 1985. Effects of Highway Runoff on Receiving Waters, Vol. III, Resource Document for Environmental Assessments. Publication No. FHWA/RD-84/064. Table 1. Summary of highway runoff quality data for six monitoring sites and typical urban runoff quality based on data from 28 cities: Average Pollutant Concentration.

^c EMC from Kayhanian, et. al. (2002) is 0.0007 mg/L. Used maximum value in range.

^d Source: Federal Highway Administration. June 1996. Evaluation and Management of Highway Runoff Water Quality. Pub. No. FHWA-PD-96-032. Federal Highway Administration Method for Estimating Pollutant Loading, Section 3.2.3, p. 52.

Abbreviations:

ha = hectare

m³ = cubic meter

kg = kilograms

lb = pound

mg/L = milligrams per liter

mm = millimeters

yr = year